

Claims:

1. A solar panel having a panel front and a panel back comprising:

- an array of solar cells, each of said solar cells having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, there being spacings between at least some of the solar cells; and
- an element comprising a visually distinguishable feature at at least one position selected from the group consisting of: between the panel back and the panel front, on the panel front, on the panel back, at the panel front, and at the panel back,

such that the visually distinguishable feature is at least partially distinguishable on viewing the panel front, and wherein the nature of the visually distinguishable feature and the location of the element relative to the solar cells do not completely prevent solar light incident on the panel front from being incident on at least a portion of the array.

2. The solar panel of claim 1 wherein the nature of the visually distinguishable feature and the location of the element relative to the solar cells are such that the amount of solar light incident on the array relative to the amount of solar light incident on the panel front is greater than about 50%.

3. The solar panel of claim 1 wherein the element is removable from the solar panel.

4. The solar panel of claim 1 in which there is an encapsulant between the solar cells.

5. The solar panel of claim 4 wherein the encapsulant is at least partially transparent.

6. The solar panel of claim 1 wherein the array is disposed on a transparent support panel.

7. The solar panel of claim 1 wherein the array is disposed between transparent support panels.

8. The solar panel of claim 1 wherein the backs of at least some of the solar cells are capable of converting at least a portion of solar light incident thereon into electrical energy, and there is a reflector located between the array and the panel back, said reflector

being capable of reflecting at least part of the solar light incident on the solar panel towards the backs of at least some of the solar cells.

9. The solar panel of claim 1 wherein the backs of at least some of the solar cells are capable of converting at least a portion of solar light incident thereon into electrical energy and the panel back comprises a reflector, said reflector being capable of reflecting at least part of the solar light incident on the solar panel towards the backs of at least some of the solar cells.

10. The solar panel of claim 8 or claim 9 wherein the reflector is selected from the group consisting of a Lambertian reflector, a diffuse reflector, a light scattering reflector and a reflector that approximates one of these.

11. The solar panel of claim 1 wherein the visually distinguishable feature is at least partially distinguishable through the array on viewing a component selected from the group consisting of the panel front or the panel back.

12. The solar panel of claim 1 wherein the element is located between the solar cells of the array.

13. The solar panel of claim 12 wherein the element comprises an encapsulant.

14. The solar panel of claim 1 wherein the element is located between the array and the panel front.

15. The solar panel of claim 1 wherein the panel front comprises the element.

16. The solar panel of claim 1 wherein the element comprises at least one activatable element, the appearance of which is capable of being changed by application of a stimulus selected from the group consisting of electrical, thermal, optical or magnetic stimuli.

17. The solar panel of claim 16 wherein the stimulus is supplied from a source selected from the group consisting of a source external to the solar panel and the array of solar cells.

18. The solar panel of claim 1 wherein the visually distinguishable feature is capable of being changed electronically.

19. The solar panel of claim 1 additionally comprising means to change the visually distinguishable feature, said means being selected from the group consisting of

means to change the visually distinguishable feature physically, mechanically, electrically, thermally, optically and magnetically.

20. A solar panel comprising an array of solar cells, each of said solar cells having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, and wherein there are spacings between at least some of the solar cells whereby the arrangement of the solar cells in the array embodies a visually distinguishable feature.

21. The solar panel of any one of claims 1 to 20 wherein each of said solar cells comprises:

10 a semiconductor strip comprising a p-type dopant or an n-type dopant and having a front, a back, a first side surface and a second side surface, wherein, in the event that the semiconductor strip comprises a p-type dopant, a first diffusion layer of an n-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front and at least a portion of the first side surface and, in the event that the
15 semiconductor strip comprises an n-type dopant, a first diffusion layer of a p-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front surface and at least a portion of the first side surface;

a first metal contact in electrical contact with the first diffusion layer of the first side surface; and

20 a second metal contact in electrical contact with the second side surface but being electrically isolated from the first diffusion layer.

22. A combination for conversion of solar energy comprising:

- an array of solar cells, each of said solar cells having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, there being spacings between at least some of the solar cells, and said array having an array front and an array back, and
- an element comprising a visually distinguishable feature at at least one position selected from the group consisting of in front of the array front, at the array front, at the array back or behind the array back,

30 such that the visually distinguishable feature is at least partially distinguishable on viewing the combination, and wherein the nature of the visually distinguishable feature

and the location of the element relative to the solar cells do not completely prevent solar light incident on the combination from being incident on at least a portion of the array.

23. The combination of claim 22 wherein each of said solar cells comprises:

a semiconductor strip comprising a p-type dopant or an n-type dopant and having a front, a back, a first side surface and a second side surface, wherein, in the event that the semiconductor strip comprises a p-type dopant, a first diffusion layer of an n-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front and at least a portion of the first side surface and, in the event that the semiconductor strip comprises an n-type dopant, a first diffusion layer of a p-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front surface and at least a portion of the first side surface;

a first metal contact in electrical contact with the first diffusion layer of the first side surface; and

a second metal contact in electrical contact with the second side surface but being electrically isolated from the first diffusion layer.

24. A process for making a solar panel having a panel front and a panel back, said process comprising locating:

- an array of solar cells, each of said solar cells having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, there being spacings between at least some of the solar cells, and
- an element comprising a visually distinguishable feature,

such that the element is located at at least one position selected from the group consisting of between the panel back and the panel front, on the panel front, on the panel back, at the panel front, and at the panel back, and such that the visually distinguishable feature is at least partially distinguishable on viewing the panel front, and wherein the nature of the visually distinguishable feature and the location of the visually distinguishable feature relative to the solar cells do not completely prevent solar light incident on the panel front from being incident on at least a portion of the array.

25. A process for making a solar panel comprising the step of arranging a plurality of solar cells in an array, each of said solar cells having a front and a back,

wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, and wherein there are spacings between at least some of the solar cells whereby the arrangement of the solar cells in the array embodies a visually distinguishable feature.

5 26. The process of claim 25 additionally comprising the step of locating the solar panel and a reflector such that the reflector is capable of reflecting at least part of the solar light incident on the solar panel towards at least some of the solar cells of the array.

27. The process of any one of claims 24 to 26 wherein each of said solar cells comprises:

10 a semiconductor strip comprising a p-type dopant or an n-type dopant and having a front, a back, a first side surface and a second side surface, wherein, in the event that the semiconductor strip comprises a p-type dopant, a first diffusion layer of an n-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front and at least a portion of the first side surface and, in the event that the
15 semiconductor strip comprises an n-type dopant, a first diffusion layer of a p-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front surface and at least a portion of the first side surface;

 a first metal contact in electrical contact with the first diffusion layer of the first side surface; and

20 a second metal contact in electrical contact with the second side surface but being electrically isolated from the first diffusion layer.

28. A solar panel when made by the process of any one of claims 24 to claim 27.

29. A process for making a combination for conversion of solar energy, said process comprising locating:

- 25 - an array of solar cells, each of said solar cells having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, there being spacings between at least some of the solar cells, and said array having an array front and an array back, and
- an element comprising a visually distinguishable feature,

30 such that the element is located at at least one position selected from the group consisting of in front of the array front, at the array front, at the array back or behind the array back,

and such that the visually distinguishable feature is at least partially distinguishable on viewing the panel front, wherein the nature of the visually distinguishable feature and the location of the visually distinguishable feature relative to the solar cells do not completely prevent solar light incident on the combination from being incident on at least a portion of the array.

30. The process of claim 29 wherein each of said solar cells comprises:

a semiconductor strip comprising a p-type dopant or an n-type dopant and having a front, a back, a first side surface and a second side surface, wherein, in the event that the semiconductor strip comprises a p-type dopant, a first diffusion layer of an n-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front and at least a portion of the first side surface and, in the event that the semiconductor strip comprises an n-type dopant, a first diffusion layer of a p-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front surface and at least a portion of the first side surface;

a first metal contact in electrical contact with the first diffusion layer of the first side surface; and

a second metal contact in electrical contact with the second side surface but being electrically isolated from the first diffusion layer.

31. A combination for conversion of solar energy, when made by the process of claim 29 or claim 30.

31. A solar cell having a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, when used in a solar panel according to claim 1 or claim 20, or in a combination according to claim 22.

32. An array of solar cells, each of which has a front and a back, wherein at least the front is capable of converting at least a portion of solar light incident thereon into electrical energy, when used in a solar panel according to claim 1 or claim 20, or in a combination according to claim 22.

33. An array of solar cells when used in a solar panel according to claim 1 or claim 20, or in a combination according to claim 22, wherein each of said solar cells comprises:

a semiconductor strip comprising a p-type dopant or an n-type dopant and having a front, a back, a first side surface and a second side surface, wherein, in the event that the semiconductor strip comprises a p-type dopant, a first diffusion layer of an n-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front and at least a portion of the first side surface and, in the event that the semiconductor strip comprises an n-type dopant, a first diffusion layer of a p-type conductivity has been introduced by diffusion, using a suitable dopant, into at least a portion of the front surface and at least a portion of the first side surface;

a first metal contact in electrical contact with the first diffusion layer of the first side surface; and

a second metal contact in electrical contact with the second side surface but being electrically isolated from the first diffusion layer.

34. Use of a solar panel according to claim 1 or claim 20 or of a combination according to claim 22 for converting light into electrical energy.

35. A method for converting light into electrical energy comprising exposing a solar panel according to claim 1 or claim 20 or a combination according to claim 22 to the light such that at least a portion of the light is incident on the panel front.

36. A solar panel according to claim 1 or claim 20 or a combination according to claim 22 when used for converting light into electrical energy.